MONASH University

Course progression map for 2021 commencing students

This progression map provides advice on the suitable sequencing of units and guidance on how to plan unit enrolment for each semester of study. It should be used in conjunction with the requirements of the course as specified in the Handbook. The map is subject to updates. Update version: 13 October 2022

E6014 Master of Engineering

Specialisation - Biological engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5001 Advanced engineering data analysis	CHE5886 Advanced biopolymers	CHE5321 Advanced bioprocess technology
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	CHE5882 Biomass and biorefineries	CHE5322 Advanced biochemical engineering

Part A. Common core units Part B. Specialist core units Part C. Enhancement units

Biological engineering enhancement units
• CHE5883 Nanostructured membranes for separation and energy production • CHE5889 Food engineering and processing • ENG5008 Work integrated learning *

** ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements.* ***If you commenced the course in the July semester intake:*** *If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.*

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E6014 Master of Engineering

Specialisation - Civil engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5001 Advanced engineering data analysis	Specialist core unit	Specialist core unit
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	Specialist core unit	Specialist core unit

Part A. Common core units Part B. Specialist core units Part C. Enhancement units

Civil engineering enhancement units	Civil engineering specialist core units
• CIV5135 Advanced structural design • CIV5177 Road engineering *Unit title change from 2022* • CIV5301 Advanced traffic engineering • CIV5314 Planning urban mobility futures • CIV5882 Flood hydraulics and hydrology • CIV5883 Surface water hydrology • CIV5887 Infrastructure rehabilitation and monitoring • CIV5888 Advanced computational methods • ECE5146 Multimedia technologies • ECE5179 Neural networks and deep learning • ENG5008 Work integrated learning * • ENG5002 Engineering entrepreneurship • MEC5882 Instrumentation, sensing and monitoring • MEC5888 Renewable energy systems • MTE5197 Engineering with nanomaterials • MTE5883 Environmental durability and protection of metals and engineering materials	Below are suggested units to guide you in focusing in a field of civil engineering suited to your previous study. You may also choose freely from the civil units listed below. Structural engineering • CIV5885 Infrastructure dynamics • CIV5887 Infrastructure rehabilitation and monitoring • CIV5888 Advanced computational methods or CIV5136 from 2023 • CIV5899 Infrastructure information management Geotechnical engineering • CIV5886 Infrastructure geomechanics • CIV5888 Advanced computational methods • CIV5899 Infrastructure information management • CIV5887 Infrastructure rehabilitation and monitoring *or* CIV5148 Ground hazards engineering Transport engineering • CIV5301 Advanced traffic engineering or CIV5899 from 2023 • CIV5302 Traffic engineering and management • CIV5304 Intelligent transport systems • CIV5314 Planning urban mobility futures Water engineering • CIV5881 Ground water hydraulics or CIV5899 from 2023 • CIV5882 Flood hydraulics and hydrology • CIV5883 Surface water hydrology • CIV5884 Water sensitive stormwater design

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E6014 Master of Engineering

Specialisation - Electrical engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5001 Advanced engineering data analysis	ECE5881 Real-time system design	ECE5883 Advanced signal processing
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	ECE5882 Advanced electronics design	ECE5884 Wireless communications

Part A. Common core units Part B. Specialist core units Part C. Enhancement units

Electrical engineering enhancement units

- CHE5882 Biomass and biorefineries
- CHE5883 Nanostructured membranes for separation and energy production
- ECE5122 Advanced electromagnetics
- ECE5143 Optical communications
- ECE5146 Multimedia technologies
- ECE5153 Power system analysis
- ECE5156 Advanced power electronics
- ECE5178 Intelligent robotics
- ECE5179 Neural networks and deep learning
- ECE5886 Smart grids
- ENG5007 Translation and commercialisation of medical technologies
- ENG5008 Work integrated learning *
- MEC5881 Engineering systems performance analysis
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

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E6014 Master of Engineering

Specialisation - Materials engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5001 Advanced engineering data analysis	Specialist core unit	Specialist core unit
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	Specialist core unit	Specialist core unit

Part A. Common core units Part B. Specialist core units Part C. Enhancement units

Materials engineering enhancement units	Materials engineering specialist core units
• CHE5883 Nanostructured membranes for separation and energy production • ENG5008 Work integrated learning * • MTE5881 Applied crystallography in advanced materials characterisation • MTE5883 Environmental durability and protection of metals and engineering materials • MTE5886 Additive manufacturing of metallic materials • MTE5194 Engineering alloy design, processing and selection • MTE5197 Engineering with nanomaterials	• MTE5190 Advanced materials modelling • MTE5193 Materials and sustainability • MTE5194 Engineering alloy design, processing and selection • MTE5197 Engineering with nanomaterials • MTE5881 Applied crystallography in advanced materials characterisation • MTE5882 Advanced polymeric materials • MTE5883 Environmental durability and protection of metals and engineering materials • MTE5884 Advanced photovoltaics and energy storage • MTE5885 Biomaterials and biomechanics • MTE5886 Additive manufacturing of metallic materials • MTE5887 Additive manufacturing of polymeric and functional materials

** ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements.* ***If you commenced the course in the July semester intake:*** *If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.*

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E6014 Master of Engineering

Specialisation - Mechanical engineering

YEAR 1 Semester 1	ENG5100 Professional engineering in organisation and society	ENG5001 Advanced engineering data analysis	MEC5883 Mechanical systems design	MEC5885 Energy efficiency and sustainability engineering
YEAR 1 Semester 2	ENG5410 Research practice in engineering	Enhancement unit	MEC5881 Engineering systems performance and analysis	MEC5884 Sustainable engineering systems

Part A. Common core units Part B. Specialist core units Part C. Enhancement units

Mechanical engineering enhancement units
• ENG5002 Engineering entrepreneurship • ENG5008 Work integrated learning * • MEC5156 Advanced robotics in manufacturing • MEC5882 Instrumentation, sensing and monitoring • MEC5888 Renewable energy systems • MEC5897 Lean manufacturing • MTE5883 Environmental durability and protection of metals and engineering materials • MTE5886 Additive manufacturing of metallic materials

** ENG5008 is work-integrated learning that will give you valuable exposure to work-related activities. Please note that enrolment in the unit is subject to available placements.* ***If you commenced the course in the July semester intake:*** *If you plan to enrol in ENG5008, you may do so in place of ENG5100 in your second semester of study as an enhancement unit.*